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ABSTRACT

One of five modules in the administrative series of the 16-module series designed to train vocational education curriculum specialists, this module is intended for use in classes or individual study arrangements at the preservice or inservice level by students with varying amounts of experience in vocational education. (These modules are revised versions of earlier study guides--see note.) Introductory materials include an overview, instructions to the learner, detailed list of behavioral goals and objectives, and resources needed to complete learning activities. The module is divided into three sections, each based on one of the goals. The first section discusses management responsibilities in which the curriculum specialist might become involved. In section 2 are summarized the characteristics, advantages, and disadvantages of major planning and management techniques for use in vocational education. The third section reviews accountability in education, looks at essential components of an accountability system in vocational education, and describes the role of the curriculum specialist in the system. Each section follows a standard format: text, individual study activities, discussion questions, and group activities. A summary of the module follows. Appendixes include suggested responses to the study activities, a self-check, responses to the self-check, and recommended references. (YLB)

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VOCATIONAL EDUCATION CURRICULUM SPECIALIST

MANAGING VOCATIONAL EDUCATION PROGRAMS

Module 14

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U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION

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a project to field test vocational education curriculum specialist materials

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MANAGING VOCATIONAL EDUCATION PROGRAMS

Module 14

Judith A. Appleby

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Table of Contents

	Page
Introduction	7
Overview	9
Instructions to the Learner	10
Goals and Objectives	11
Resources	12
Goal 1	13
Management Responsibilities of the Vocational Education Curriculum Specialist	15
Employing Highly Qualified and Efficient Personnel	15
Advertise	16
Analyze responses	16
Interview most qualified candidates	16
Hire best qualified candidate	17
Obtaining Needed Facilities, Equipment, and Supplies	18
Planning facilities	18
Locating equipment	20
Instructional supplies vs. instructional equipment	21
Purchase specifications	21
Cataloging equipment and supplies	22
Scheduling	23
Team teaching	23
Individualized instruction	23

Page

Differentiated staffing 23

Modular scheduling 24

Preparing a Budget 24

Calculate revenue 25

Calculate expenditures 25

Individual Study Activities 27

Discussion Questions 29

Group Activity 29

Goal 2 31

Planning and Management Techniques 33

Planning Techniques and Systems Analysis 33

Management by objectives 34

PERT 34

PPBS 36

Individual Study Activity 41

Discussion Questions 41

Goal 3 43

What is Accountability? 45

Implementing an Accountability System 46

Identify program goals 46

Identify classroom and course level goals 46

Determine the skills, knowledge, and attitudes the course should teach 46

Develop the criterion-referenced test 47

Page

Develop the curriculum 47

Develop a monitoring system 47

Maintain a record of expenses 47

Conduct an Evaluation 47

Individual Study Activities 49

Discussion Questions 49

Group Activity 50

Summary 51

Appendices 55

Study Activity Responses 57

Self-Check 65

Self-Check Responses 67

Recommended References 69

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Introduction

The purpose of this module is to provide the curriculum specialist with knowledge of the basic skills and techniques necessary to plan and manage vocational education programs. The Vocational Education Amendments of 1976 stressed the importance of broad-based planning.

More effective planning is needed to address a number of critical factors: limited resources, requests to improve or develop programs, pressures to decentralize decision-making at the policy-making and administrative levels, and increased demands for accountability regarding programs and services.

Planning is discussed in depth in this module. The planning process is also featured in the modules in this series that deal with curriculum design, development, and implementation.

Overview

Goal 1 discusses various management activities in which the curriculum specialist might become involved. Described here are techniques for selecting instructors; providing facilities, equipment, and supplies; scheduling; and preparing a budget.

Goal 2 covers a variety of planning and management techniques. Many of these techniques originated in business, industry, or the military, and have been successfully utilized in education as well. The specific techniques discussed in the module and the required text include Management by Objectives (MBO), the Program Evaluation and Review Technique (PERT), the Planning, Programming, Budgeting System (PPBS), the Delphi technique, the advocate team process, and Zero-Based Budgeting (ZBB).

Goal 3 of this module reviews the concept of accountability in education, looks at the essential components of an accountability system in vocational education, and describes the role of the curriculum specialist in the system. Accountability is a systematic way of evaluating vocational education programs, services, and activities to determine their efficiency and effectiveness in meeting the needs of students and the labor market.

Instructions to the Learner

The Self-Check items and possible responses to them are found in the appendices. These questions have two purposes. First, before you begin work on the module, you may use them to check quickly whether you have already learned the information in previous classes or readings. In some instances, with the consent of your instructor, you might decide to skip a whole module or parts of one. The second purpose of the Self-Check is to help you review the content of modules you have studied in order to assess whether you have achieved the module's goals and objectives.

You can also use the list of goals and objectives that follows to determine whether the module content is new to you and requires in-depth study, or whether this module can serve as a brief review before you continue to the next module.

Goals and Objectives

Goal 1: Describe management responsibilities with which the vocational education curriculum specialist might become involved.

Objective 1.1: Identify the steps involved in selecting instructors.

Objective 1.2: Identify the steps involved in providing facilities, equipment, and supplies.

Objective 1.3: Identify the steps involved in scheduling.

Objective 1.4: Identify the steps involved in preparing a budget.

Goal 2: Summarize the characteristics, advantages, and disadvantages of major planning and management techniques for use in vocational education.

Objective 2.1: Identify the characteristics and uses of Management by Objectives (MBO).

Objective 2.2: Identify the characteristics and uses of the Program Evaluation and Review Technique (PERT).

Objective 2.3: Identify the characteristics and uses of the Planning, Programming, Budgeting System (PPBS).

Objective 2.4: Identify the characteristics and uses of the Delphi technique.

Objective 2.5: Identify the characteristics and uses of the advocate team process.

Objective 2.6: Identify the characteristics and uses of Zero-Based Budgeting (ZBB).

Goal 3: Explain the relationship between planning and accountability in vocational education.

Objective 3.1: Define the concept of accountability in education.

Objective 3.2: Describe the role of the vocational education curriculum specialist in the accountability system.

Objective 3.3: List essential components of an accountability system in vocational education.

Objective 3.4: Discuss the importance of comprehensive planning in vocational education.

Resources

In order to complete the learning activities in this module, you will need information contained in the following publication.

Lamar, C. F. (Ed.). Comprehensive planning for vocational education: A guide for administrators (Eighth Yearbook of the American Vocational Association). Washington, D.C.: American Vocational Association, 1978.

GOAL 1: Describe management responsibilities with which the vocational education curriculum specialist might become involved.

Management Responsibilities of the Vocational Education Curriculum Specialist

Frequently, the curriculum specialist will be a member of a county or district management team. In this capacity, the curriculum specialist may be asked to contribute to policy decisions and to assist in such day-to-day management tasks as:

- employing highly qualified and efficient personnel;
- obtaining needed facilities, equipment, and supplies;
- scheduling; and
- preparing a budget.

Each of these management responsibilities is described in detail in the sections that follow.

Employing Highly Qualified and Efficient Personnel

The curriculum specialist will want to select personnel who are experienced. As a general rule, the characteristics of the ideal person for the job can be described by listing the following information:

- Relevant work experience
- Number of years of work experience
- Minimum education attained (degree or certification)
- Major area of study preferred
- Teaching experience--number of years, grade level, and subject

- Special licenses and certification required
- Personality characteristics or attributes
- Total staff time required--full-time or part-time

Once the job has been described, the curriculum specialist will need to identify sources of potential staff members and to recruit, select, and hire a staff. The guidelines listed below outline the recruitment and hiring process.

Advertise. The curriculum specialist should develop an advertisement that contains background information about the school, position qualifications, conditions of employment, specific information about the position, and the person to contact about the position.

These advertisements for new staff should be sent to such likely locations as colleges or universities offering majors in subjects related to the job vacancy. When deciding where to send advertisements, the curriculum specialist will want to consult with specialized advisory committees and members of organizations representing occupations for which staff are to be located.

Analyze responses. After compiling a list of all interested applicants, the curriculum specialist should ask those who meet the qualifications to submit a complete application, credentials, and other information required by the institution. Applicants should be kept up to date on the status of their applications. Receipt of applications should be acknowledged and applicants should be notified when positions have been filled.

Interview most qualified candidates. The curriculum specialist should invite the most qualified candidates to visit the institution. Candidates should be informed in advance whether travel, motel, and meal expenses will be paid so that there is no misunderstanding.

After the candidates tour the facilities and learn what will be expected of them, they should be encouraged to ask questions. The following points might be covered at this time:

- Background and philosophy of the school
- Background and philosophy of the school's vocational education program

- Future plans for school and vocational programs
- Administrative structure of the school
- Background for the development of the new course or program
- Content of the new course or program
- What will be expected of the person hired for the position

The candidates should be interviewed after the orientation. The division, department, or program chairperson and several staff members should meet with one candidate at a time. The appropriate administrator should also have the opportunity to interview the candidates. The following information might be sought from the candidate during the interview:

- Philosophy toward vocational programs
- Attitude toward occupational area and instructional programs to train students for the area
- Skills possessed by the candidate
- An assessment of the candidate's strengths and weaknesses

Hire best qualifed candidate. After the interviews are conducted, the curriculum specialist should meet with the staff to review the strengths and weaknesses of each candidate and to decide which candidate is to be recommended for hiring. To assist with this procedure, the curriculum specialist will want to develop an interview sheet on which each member records the candidate's strengths and weaknesses and ranks them in order of preference.

Following established institutional policy, the curriculum specialist will then prepare a recommendation to employ the candidate who has been selected. When final (Board) approval is given and the contract signed by the recommended candidate, the curriculum specialist should send letters to all the other people who applied for the position, thanking them for their interest in applying and informing them that the position is filled (Davis & Borgen, 1974).

Obtaining Needed Facilities, Equipment, and Supplies

The time to specify needed facilities, equipment, and supplies is after course goals, instructional objectives, units, methods, and evaluation procedures have been planned.

The first factor to consider is the number and type of work stations that are needed for the course. A work station is the bench, machine, desk, study carrel, or place where one student may work or headquarter for a period of time. It is worthwhile to search the literature for recommended facilities, equipment, and supply and space requirements for the proposed course. In addition, the curriculum specialist will want to talk with educators who have offered similar programs and with representatives from business and industry. These educators and representatives should be able to discuss the adequacy of their own facilities, equipment, and supplies and to offer some helpful suggestions regarding minimum and ideal course requirements. The curriculum specialist should be sure to provide these educators and representatives with the following data:

- The expected number of students to be served--total number, and number per class session
- The course and program to be offered
- The instructional methodology that will be used--classrooms, laboratories, audiovisual-tutorial carrels, on-the-job work experiences
- The hardware (equipment) that you plan to use (Davis & Borgen, 1974)

Planning facilities. When planning facilities, the curriculum specialist should work with experienced program directors to determine the space required for the equipment, the space required for the classroom instructional area, the total square footage required for the classrooms and laboratories, and the type of facilities and structure(s) needed for the classrooms and for housing the hardware. In making this determination, the curriculum specialist should consider the following:

- Is window space needed?
- Is ventilation needed--exhaust fans or hoods?
- Is air conditioning or refrigeration needed?
- Should lighting be natural or artificial?

- What type of artificial lighting is needed?
- What ceiling height is needed?
- What size doors are needed?
- What electricity is needed--110, 220, 440, 880, and single-phase or three-phase voltage?
- Is running water needed?
- Are special wash facilities needed for students (Davis & Borgen, 1974)?

As a general rule, the curriculum specialist should follow these guidelines when preparing new facilities:

- Prepare for delays in construction.
- Consult with teachers and with representatives from business and industry when determining construction specifications.
- Don't rely on other vocational facilities--your needs may be different, and real-life requirements may have changed.
- Avoid the "dual use" idea. These economy efforts often result in neglected vocational program objectives.
- Choose an architect with prior experience in vocational facility planning.
- Don't overlook strong public relations aspects when planning facilities.
- Build facilities after you have developed educational specifications that have been researched and substantiated by facts.

Mobile units can be an alternative to traditional facilities. Three types of mobile units are most commonly used. One is the commercially available "house" type unit outfitted by firms in the business of providing mobile classrooms. Another is an old passenger or school bus with the equipment for the program built in by either the school or a commercial firm. The third is a trailer constructed on a purchased chassis.

The reasons for using mobile units vary widely. Some districts hope to promote permanent programs by demonstrating what

can be accomplished with a mobile unit. Other districts use them when low enrollments do not warrant a permanent facility. Still others find it feasible to share the cost of the laboratory and the instructor's salary among schools. For example, each day a district in Colorado shuttles an electronics facility between two schools 18 miles apart. Advantages of mobile units include the following:

- They are initially less expensive than adding a building to a school.
- The cost per student is lower when the program can be shared with one or more additional districts.
- Expensive equipment is used to a greater degree since the mobile unit moves to another school when instruction is completed.

Disadvantages of mobile units include:

- The facility depreciates rather rapidly.
- The tractor or power unit involves high maintenance costs--gasoline, oil, tires, and repair.
- Delicate instructional mechanisms and equipment may be damaged when transported over rough terrain.
- The safety zones and work space around the machines are usually limited because of the narrow widths of the mobile units (Silvius & Bohn, 1975).

Locating equipment. The next step is to purchase, or--if possible--locate already purchased equipment for the vocational program. The curriculum specialist should consider the number of hand tools, instruments, utensils, or other items of specialized equipment needed for the program. To determine the minimum amount of special equipment needed by students at any one time, the teacher and curriculum specialist need to anticipate the kinds of units, projects, experiments, or activities that will be completed at the work stations.

When curriculum planners have identified the equipment necessary for one student, the following factors need to be considered:

- the number of work stations at which such a project, experiment, or activity is likely to be performed concurrently;

- the degree to which tools, instruments, or other items are used in performing an operation or task; and

- the amount of student cooperation expected in the use of any one piece of equipment (Silvius & Bohn, 1975).

Instructional supplies vs. instructional equipment. For budget and accounting purposes, it is important to distinguish items as either instructional supplies or instructional equipment.

One distinction often made is that instructional supplies are those items that are used in some way to facilitate a unit of work or are used in the construction of a project; they are usually used once, or a few times, by the student. They are the expendable items. Instructional equipment, on the other hand, includes the tools and machines that can be used again and again over a period of time. They are not expendable.

Examples of equipment and supplies include:

Equipment	Supplies
Wheelchair (for transporting patients)	Medicine droppers
Cash register	Paper
Machine lathe	Tool bit
Refrigerator	Flour

Purchase specifications. Before purchasing equipment and supplies, the curriculum specialist will have to write specifications, request bids, and evaluate the submitted bids.

Purchase specifications are precise descriptions of equipment and supplies intended for purchase. They describe the quality and quantity required. Specifications should be broad enough to ensure that several manufacturers or suppliers will be able to bid on the equipment.

The development and design of the specifications vary with each institution and individual. Before drawing up specifications for bids, the curriculum specialist should consult with the school's business manager to learn what state and local guidelines and legal constraints should be considered.

The following are general guidelines for the preparation of specifications to be used in the purchase of instructional equipment and supplies:

- Assemble a course outline specifying the learning activities for the course.

- Review the course, considering the instructional objectives and the methodology to be used. Prepare a list of needed equipment and supplies. For assistance, consult with state advisors, advisory committees, vendors, and others who have taught the class.

- Estimate the total cost of equipment and instructional supplies.

- Rank instructional equipment and supplies according to priority. Since it is not usually possible to acquire all the instructional equipment and supplies desired for a given course, this ranking will help in selecting the most critical items.

- Identify the local institutional policies for purchasing, requesting bids, and receiving quotes.

- Prepare purchase specifications for the equipment. Refer to industry- or government-prepared standards, or call in salespeople involved with the products to discuss specifications with them. Prepare a worksheet for recording the specification data. The following should be included on the worksheet:

  (1) Size
  (2) Shape
  (3) Weight
  (4) Color
  (5) Quantity
  (6) Quality
  (7) Conditions of delivery--when and where
  (8) Conditions of payment--when

Cataloging equipment and supplies. After instructional equipment and supplies have been purchased, they should be numbered and recorded on an inventory record showing number and name of item, size or description, date acquired, quantity, purchase price, years to depreciate, and location. All equipment should be given a tag and number so that it is identified as belonging to the school, state government, or federal government.

This inventory should be kept up to date so that program staff members are always aware of equipment and supplies on hand. An inventory will also help locate and identify those

items that are missing or broken. Finally, the inventory, if updated annually, will indicate which equipment needs replacement. A checkout system for lending materials to students should also be developed.

Scheduling

Well designed schedules encourage the efficient use of facilities and of student and staff time. When preparing a program schedule, begin by identifying local institutional policies and practices related to scheduling, work load of teachers, work load of students, and forecasting number of sections. This information may be available from a master teacher or from institutional policy manuals. In addition, a set of forms for developing a room schedule and for setting up instructor and department schedules for one year should be prepared. The institution may already have such forms and a procedure for their completion.

Before developing a schedule, the curriculum specialist should take time to consider how the following types of instruction might be used--either as described or in a modified form--to improve the effectiveness of a program.

Team teaching. Team teaching refers to several teachers (usually two to five) working together as a "team" with a common group of students. The team of teachers has joint responsibility for planning, developing, implementing, and evaluating an educational program for these students. Each teacher might have a special competency and area of interest; thus, the total team would include a number of specialists, each capable of leading the planning and perhaps teaching a major part of the instruction in his or her area of expertise.

Individualized instruction. This term refers to a method of instruction in which students work alone, at their own pace, on assignments designed to meet their interests, needs, and abilities. The subject matter studied may be cooperatively determined by both the instructor and the learner. During classtime, the teacher is available to answer students' questions and to provide needed assistance.

Differentiated staffing. The roles and responsibilities of teachers are highly structured under differentiated staffing. With this plan, some of the more experienced teachers function as master teachers or program leaders and assume a responsi-

bility for program development work that is not expected of the beginning teacher. The master teachers also assist beginning teachers. Routine or nonteaching tasks are assigned to laboratory assistants, teacher aides, and maintenance and clerical staff.

Modular scheduling. The modular schedule, or variable class schedule, is a descriptive term used to indicate some type of student cycling over a varied period of time. Modular scheduling might refer to actual scheduling or to facilities, students, or units of instruction. The following definitions may help to clarify these terms:

- Module of time refers to the amount of instructional time allotted for a given module. For instance, if a module is designed for 20 minutes of instructional time, a 6-hour day would encompass approximately 18 modules.

- Modular facilities are classrooms in which the space can be adjusted to fit varied needs. Inner classroom partitions are flexible so that they may be opened or closed as needed.

- Modular scheduling involves classes that meet several days a week. The length of a class might be different each day or for each subject matter area. For instance, if a student needed to spend 300 minutes in Home Economics 101 each week, that student might meet for five 20-minute modules three days a week, or for two 20-minute modules three days a week and one 180-minute lab per week. Modular scheduling allows for block scheduling, which is essential for laboratory sessions and many vocational classes.

- Modular unit of instruction refers to the breakdown of a course into smaller packages or units of instruction designed for individual students. As students complete modules, they take a test and, if they pass, begin the next module.

Preparing a Budget

Before a new program can be implemented, the necessary equipment and instructional materials purchased, or staff hired, a budget must be prepared and approved. A budget controls course expenditures and can be modified slightly after completion.

When preparing a budget, the curriculum specialist should begin by consulting with the district business manager or appropriate administrator regarding forms and procedures used in the district. The procedure discussed here is general, but it should help in preparing an annual budget for a specific course or program.

Calculate revenue. The most important item in calculating revenue is usually the number of students enrolled in a course. Prior to budgeting, it is strongly recommended that the curriculum specialist do a survey of student interest in the content of the course. Students should be asked to complete a simple questionnaire committing themselves to enrolling in the course. If it is not possible the conduct a survey, the curriculum specialist might use the following indicators to estimate enrollment:

- Number of students in cluster programs that might be interested
- Number of students in prerequisite courses that can qualify
- Student interest demonstrated during the past year
- Whether the course is a prerequisite for other courses
- Estimated cost of the course to the students

Once the curriculum specialist has established the best possible prediction for enrollment, these figures can be used to calculate the revenue that will be earned by student tuition, fees, state apportionment, and state vocational reimbursement. If there is any tax support, this figure should also be calculated. Other possible sources of revenue, including the possibility of evening students, should also be calculated at this time.

Calculate expenditures. The curriculum specialist will need to discuss costs for the new program or class with the business manager to determine local fees. The more carefully the program is planned, the more accurate the estimate of expenditures will be. To calculate expenditures, consider the following items:

- Salaries of staff, including full-time and part-time staff, secretarial assistance, janitorial service

- Travel that will be provided for students or required of and reimbursed to staff
- Supplies, including paper, pencils, resources
- Instructional equipment
- Construction, renovation, and rental of physical facilities
- Inservice training of staff

When estimated revenue and expenditures have been calculated, the curriculum specialist should determine the total for each and calculate the estimated net gain or loss for the program.

Individual Study Activities

1. Select a vocational topic or content area that is not being taught presently in your school or institution. The topic, however, should be one that might conceivably be the subject of a course in your setting. After you have selected a topic, complete tne following activities.

   (a) List the qualifications an instructor should have in each of the following categories if he or she were to teach your course.

   - Relevant work experience
   - Number of years of work experience
   - Minimum education attained
   - Major area of study
   - Teaching experience (number of years, grade level, and subject)
   - Special licenses and certification
   - Personality characteristics or attributes

   (b) List the most important steps you would follow to advertise for, recruit, and select an instructor.

2. (a) Should needed facilities be specified before or after course objectives are written?

   (b) What is the definition of "work station"?

   (c) What factors determine the number of tools, instruments, or utensils needed for a course or program?

   (d) What is the difference between "instructional supplies" and "instructional equipment"?

   (e) What are some of the advantages and disadvantages of mobile laboratories?

3. (a) List the state guidelines and restrictions that apply to purchasing supplies in your school district. For instance:

   - What is the maximum amount you can spend on an item without requesting bids?

- How many bids must be requested before a purchase is made?
- Must you purchase equipment from the lowest bidder?
- Under what circumstances can telephone bids be used?

(b) List the steps that should be completed to purchase equipment.

4. What are three advantages of maintaining an up-to-date inventory of all materials and equipment?

5. Complete the following activities, using the topic you selected in Activity 1.

   (a) Explain why the following types of teaching schedules could or could not be used for your particular topic: team teaching; individualized instruction; and modular scheduling.

   (b) Briefly describe the type of management system you would use to manage your course. Then, describe how you would plan a schedule of classes and teachers.

6. Complete the following activities by referring to the course or program you selected for Activity 1.

   (a) Obtain the budget forms used by your school or district. If they do not have a form, or if you are allowed to do so, develop your own.

   (b) If possible, interview students to determine interest in the course; also interview teachers and administrators to determine student fees, state apportionment, and other relevant budgeting information.

   (c) Calculate the expected revenue and the expected expenditures. Then determine the difference between them in order to get the net cost or gain.

   (d) Submit your budget plan to your instructor for review. Be ready to support your figures and to justify why the course should be given.

7. Read Chapter 5 in Lamar, C. F. Comprehensive planning for vocational education (Eighth Yearbook of the American Vocational Association). Washington, D.C.: American Vocational Association, 1978. It provides a good description of the resources needed to support planning functions

in vocational education. To summarize your reading, answer the following questions:

(a) What are the four general categories of resources needed to support the planning function?

(b) What are three general approaches for securing these resources?

Discussion Questions

1. Discuss the following problem: "Should I plan a program that is limited to the equipment and instructional supplies now available to me?"

2. Discuss the following problem: "How do I cope with an instructional program for which it is only possible to get the needed equipment a little at a time?"

Group Activity

1. In groups of about five students, briefly describe a shop, home economics, medical care, or other vocational course that requires special facilities. Each group should describe how it would design such facilities--the type of equipment it would use, how it would be arranged, and what special, individualized features would be included.

GOAL 2

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GOAL 2: Summarize the characteristics, advantages, and disadvantages of major planning and management techniques for use in vocational education.

Planning and Management Techniques

When planning and evaluating curriculum, the vocational education curriculum specialist will want to rely on one or more of the planning and management techniques described in this section. These techniques can help the curriculum specialist communicate to administrators and to the general public the costs and benefits of curriculum changes.

Planning Techniques and Systems Analysis

All planning techniques are based on the concepts of systems analysis. The salient features of systems analysis are:

- clear delineation of long- and short-range objectives capable of being translated into operationally meaningful activities and subsequent evaluation;
- recognition of the dynamic nature of goals and ability to sense when new ones have emerged or when a reordering of priorities among existing objectives is imperative;
- utilization of quantitatively oriented tools and procedures in analysis of systems; and
- high priority given to planning and programming activities by top echelon administrators.

Systems analysis is a useful tool when planners know the specific outcomes they want to achieve but are not sure what resources, people, and events should be used. It is also useful when determining the costs of activities or programs, although it is not a cost-reporting system per se. Described below and in the outside readings are several management techniques based on systems analysis.

Management by objectives. Management by objectives (MBO) is a process oriented toward the accomplishment of a predetermined objective at some point in the future. The emphasis is on where the organization is going, what is to be accomplished, what are alternative ways of achieving a predetermined objective, what resources and activities are to be generated in the environment in which accomplishment is to occur, and how well the actual performance conforms to the desired level of performance.

Management by objectives is used extensively by business. It is often referred to as management by results or goal management. One characteristic of MBO is that it encourages the integration of many different levels of individuals. They all cooperate to achieve an objective agreed on by the organization.

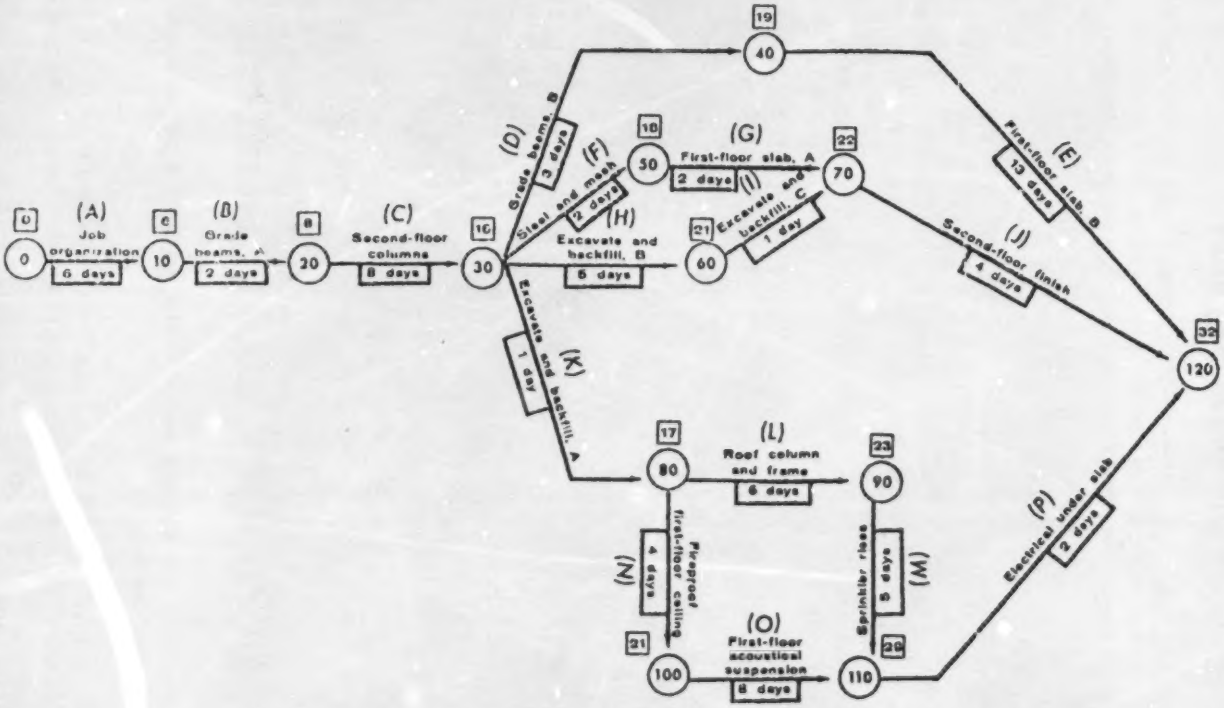
MBO is a particularly good method if motivation is a problem. Participants, once they have agreed on the value of the objective, are usually enthusiastic in helping to achieve the objective.

PERT. The Program Evaluation and Review Technique (PERT) is a diagrammatic planning technique for scheduling complex and numerous events in a way that shows interrelationships and dependencies. PERT attempts to help planners reduce the lag between estimated project completion time and actual completion time. It is used primarily for project management functions: planning, scheduling, controlling, and evaluating events and activities.

The purpose of a PERT system is to evaluate the progress made in the attainment of project goals; to focus attention on potential and actual problems in projects; to provide management with frequent and accurate status reports; to predict the likelihood of reaching project objectives; and to determine the shortest time in which a project could be completed.

The diagram on the following page is an example of a PERT chart for completing the basic construction of a two-story building. The circles represent completed events. The lines represent activities, with time for their completion specified. Connecting lines represent interdependencies.

AN EXAMPLE OF A PERT FLOWCHART OR NETWORK*



*from Marks, M. E., Taylor, H. L., Schoen, G. W., & Susbauer, J. S. CPM/PERT: A diagrammatic scheduling procedure. Austin, Texas: The University of Texas at Austin, Bureau of Business Research, 1966.

PPBS*. Planning, Programming, Budgeting Systems (PPBS) commanded a lot of attention when it first appeared. Unfortunately, the PPBS concept was quickly distorted by claims and misinformation. As a consequence, many people couldn't decide what PPBS is and what it is supposed to do.

- History of PPBS. The PPBS concept was developed for government agencies by the RAND Corporation in the 1950s. PPBS integrates several familiar planning, budgeting, and evaluation processes into a systematic whole.

The first application of this system was the reorganization of the Department of Defense under Robert McNamara in 1961. This application was so successful that by 1965, President Johnson directed all major federal departments and agencies to implement a PPB system.

Since then, PPBS has been used by state and local governments in many areas, including the administration and management of such public services as libraries and educational institutions.

- Schools and PPBS. In the past, the management of public school districts has been divided: the business office has been responsible for accounting and analysis; the instructional division has been responsible for developing objectives and curriculum; and the school board has been responsible for overall district policies. For general operating purposes, these divisions are quite useful. But in budgeting and planning, these divisions have too frequently worked at cross-purposes, or in ignorance of each other, resulting in a great lack of efficiency.

The function of PPBS is to tie these separate elements and their activities into a comprehensive management system for the purposes of:

- planning and organizing school curriculum and supportive activities most effectively;
- evaluating school activities in terms of student achievement; and
- systematically budgeting for each activity, at least partly on the basis of objectives, cost, and effectiveness.

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* This section is adapted from Management Systems for Vocational and Technical Education. Columbus, Ohio: ERIC Clearinghouse on Vocational and Technical Education, 1971.

• Key feature of PPBS. The key feature of a PPB system is its emphasis on the organization of all school activities into programs. A program is a category consisting of either a major area of study, such as mathematics or home economics, or a part of the educational support system, such as transportation or food services.

When resources are allocated directly to programs, the cost of each program can be easily determined and related to the program's purpose and importance. By establishing appropriate performance criteria, the program can also be evaluated and revised if necessary.

To summarize, PPBS provides the structure necessary for identifying where money is being spent, and, conversely, for revealing the cost of reaching program objectives and goals. Furthermore, with its emphasis on program analysis and evaluation, it provides a sound basis for decisions regarding curriculum revisions.

• How PPBS works. Naturally, PPBS does not operate by itself. An operational PPBS needs the cooperation and involvement of the entire school and district staff. First, teachers and administrators specify learning objectives and plan new programs, using evaluation data from past programs. Administrators organize all program information into a useful district-wide structure, and project the costs of every program and proposal. The school or district management team formulates a plan encompassing all district programs that can be implemented through the budget; the plan is based in part on the analysis of program objectives, costs, and effectiveness.

• PPBS documents. A PPB system requires that information be organized into several convenient documents. The number and scope of these documents can vary somewhat depending on the particular needs of the school system. Generally, however, there are four major documents:

(1) Program Structure--The first document is called the program structure. The program structure organizes all school programs into categories and levels based on program purpose and scope. For instance, instructional programs, instructional support, pupil services, general support, and community services are usually the first-level divisions for all district programs. Goals are developed for all of these categories.

In the next level, instructional programs, for example, are usually divided into general education, special education, vocational education, continuing education,

and summer school. Appropriate goals are also developed for these categories.

Next, for example, general education is divided into preformal, elementary, secondary, and adult programs, each with its own set of goals.

Elementary, secondary, and adult programs are further divided into curriculum department subjects such as drama, English, and mechanical drawing. At this level, objectives are specified for each department.

The final level divides each department into specific classes or courses.

A complete program structure provides a framework for reporting to the state board and others information about what district programs are supposed to accomplish. However, this information about the projected accomplishments of all district activities would be useless without some sort of evaluation criteria. This is the purpose of the second document.

(2) Program Report--The program report provides feedback to school and district management on the successes and failures of each program. Each report covers an entire ongoing program, and includes:

- the criteria and methods used to evaluate the program;
- any variations between estimated and actual student performance;
- general and specific progress of the program; and
- problem areas and any other pertinent material that may eventually be used to assess the achievement of educational and fiscal objectives.

Usually, districts implementing PPBS appoint an individual to collect and analyze evaluation data at planned, periodic intervals, and to coordinate all district evaluation activities.

(3) Program Description--The third document PPBS uses is called the program description. This summation is a major analysis of each program. It lists program choices or options and their implications.

Basically, a program description is a comprehensive statement of program content. It describes:

- the activities to be performed;
- the time period in which they are to be accomplished;
- the resources assigned;
- the objectives the program is designed to achieve;
- the resources assigned;
- the schedule of activities to be performed;
- the criteria that will be used to measure the students' achievement of the objectives; and
- the responsibilities assigned to the teacher or department head.

The fourth and final document is prepared by central district staff.

(4) Multi-Year Program and Financial Plan--The multi-year program and financial plan (MPFP) is a summary of the budgeting and planning from all other PPBS documents. It includes:

- all major program decisions and their implications for future planning;
- program objectives and evaluation criteria; and
- estimated funding requirements for each program for the first year and four subsequent years.

The MPFP has several purposes:

- It summarizes program decisions and allows an overall examination of program costs and benefits.
- After approval and possible revision by district board members, the MPFP becomes the basis for program implementation.
- It shows where the various school programs are going, and how they are going to get there.

- It serves as the basis for future budget documents, because it permits comparisons between the cost and the effectiveness of a given program.

- It is an excellent vehicle for informing the community and state legislature of the uses of tax money, and what is to be accomplished with that money.

Obviously, a PPB system cannot answer every question one may ask. PPBS is an information-gathering device that the administrator uses for more effective decision making. PPBS does not make decisions; it does, however, provide facts, comparisons, etc., upon which to make decisions. It does not address itself to the problems of work efficiency, personnel selection, or administrative procedures.

There are many advantages to the PPB system:

- PPBS encourages choices supported by facts.

- Implicit in the system is a continuous review and analysis of all school programs and activities.

- The system makes long-range program and cost planning routine.

- It makes more and better information available.

- It can significantly aid in determining priorities for scarce resources.

- It can link program evaluation to future planning.

- PPBS promotes community-school relations by effectively informing the public of program decisions, accomplishments, and priorities.

Individual Study Activity

1. Read Chapter 9, "A Survey of Planning Techniques," in Lamar, C. F. (Ed.). Comprehensive planning for vocational education (Eighth Yearbook of the American Vocational Association). Washington, D.C.: American Vocational Association, 1978. It describes a number of planning techniques. From your reading in the module and the text, answer the following questions as they relate to management by objectives, PERT, PPBS, the Delphi technique, the advocate team process, and Zero-Based Budgeting.

   - What are the characteristics of this technique?
   - When should this technique be used?
   - What is a possible application of this technique in vocational education?

Discussion Questions

1. Discuss your experiences with each of the planning techniques cited above. Was the technique utilized successfully? If not, what were the problems involved in its use? Would you recommend the technique for use by others?

2. Should the community be involved in the PPBS process? At what point?

3. What problems do you see in the PPB system?

4. What advantages do you see in the PPB system?

GOAL 3: Explain the relationship between planning and accountability in vocational education.

What is Accountability?

Accountability can be defined as a plan or procedure whereby the effectiveness of instruction is determined, and appropriate personnel held responsible. Landers defined accountability as follows:

> First, it [accountability] directs public attention to the results of the educational process rather than to its components. Second, it attempts to fix responsibility for these results. Third, it addresses itself to the consequences of no results or poor results.
>
> None of these ideas is entirely new. Thus parents and [others in the] community, as well as educators have always been greatly concerned with the results of education; but the focus of attention--and of praise or blame--was generally [placed on] the child rather than the institution or its individual practitioners...

There are many interpretations of the concept of educational accountability. However, underlying them all is the assumption that responsibility for students' success or failure rests with the administrators and teachers. It is also generally agreed that an accountability system must provide procedures for:

- determining student learning needs;
- determining the effectiveness of the educational process in meeting these needs (How well do we meet these needs?); and
- determining the efficiency of the educational process in meeting these needs (Can we spend less money or time?) (Good, 1973).

Implementing an Accountability System

The essential components of an accountability system include learning goals and instructional objectives, criterion-referenced tests, a monitoring system to gather data on students, and accurate cost data. If you've studied other modules in this series, many of the components of an accountability system will already be familiar to you. Seven steps for setting up an accountability system are described briefly below:

Identify program goals. The general goal of a system of vocational education may be to provide entry-level training in a specific occupation through the use of individualized instructional methods. This is a broad goal--too broad for the classroom. As such, it would apply to the program as a whole. The identification of program goals is discussed in more detail in the module in this series devoted to vocational needs assessment and curriculum development.

Identify classroom and course level goals. The second step is to develop more explicit goals at the classroom and course levels. For instance, one course goal might be to provide training for clerk-typists. If placement is part of the goal, there must be a reasonable expectation of job openings. Job opportunities can be checked by conducting an employment survey of the area. This is where community cooperation comes in. Area or regional business associations should be helpful in estimating and projecting employment needs. Information is also available through cooperating agencies such as state employment departments.

Since job placement is affected by contingencies beyond the school's control, it is not usually included in the school's accountability system. Traditionally, however, it has been included in the accountability system for vocational education.

Determine the skills, knowledge, and attitudes the course should teach. This means analyzing the job as a series of tasks to be performed and then determining the skills needed to perform those tasks (Elias & Reece, 1973). Again, the business/industry community should be involved in the decision-making process. Only through close cooperation with the business/industry community can the teacher and curriculum specialist decide which skills and knowledge, as well as attitudes, are important and should be taught.

Teachers and curriculum specialists who develop their objectives independently should validate the objectives with someone who currently performs or supervises the job. This is one of the major roles of the vocational curriculum specialist--to act as a bridge between the business/industry community and the classroom teacher. The determination of course content is covered in depth in the module in this series devoted to conducting task analyses and developing intructional objectives.

Develop the criterion-referenced test. This test will be used to measure the degree to which students have achieved the course and program objectives. At least one test item for each objective is preferable. For more information on this topic, you may wish to refer to the module in this series devoted to selecting instructional strategies and assessing student achievement.

Develop the curriculum. The curriculum will help the students achieve the objectives and pass the tests. Curriculum development is described in detail in other modules in this series.

Develop a monitoring system. The monitoring system will help teachers and administrators to keep track of student progress. This system should be as uncomplicated as possible. It can, for example, be simply a list of test items that students check off as each is passed. If the course has been taught previously, a time chart comparing the progress of each current student with the average progress of previous students might be useful.

Maintain a record of expenses. This record should be up to date and accurate so that interested parties can, at any time, determine the cost of a given course. Because of the compartmentalized nature of school budgets, it is virtually impossible to assign costs on an individual class basis. However, the more cost details that can be provided, the easier it is to estimate program costs.

Conduct an Evaluation

Evaluating the results of the teaching effort is, of course, essential to fulfilling the concept of accountability. There are two phases in such an evaluation. The first is the

immediate evaluation, which is concerned with the following questions:

- Have students achieved the objectives?
- Has the teaching process been as efficient as possible?
- Did we teach the correct objectives? (Can students use the skills and knowledge we have taught in a real-world situation?)
- Have we increased student interest in the subject taught?

These are the most important questions to ask when evaluating teaching efforts. They are the points over which teachers and schools have direct influence and responsibility (Kaufman, 1973).

The second phase in evaluating teaching efforts follows the first and is usually thought of as a follow-up or exit evaluation. This phase is concerned with the following questions:

- Is the course responding to labor market needs?
- Can graduates of the program be placed in jobs commensurate with their training and their expectations?
- Do graduates of the program feel the course was relevant?
- What are the graduates' salaries when they begin work and after six months or a year on the job in comparison with general education graduates?
- Were students overtrained? If yes, what was the cost of that overtraining?

For more information on evaluation, the reader may wish to consult the modules in this series devoted to evaluating instructional curricula, conducting follow-up studies, and communicating and using evaluation results.

Individual Study Activities

1. What is the concept of "accountability" in education?

2. What is the role of the following personnel in the accountability process? Try to determine the role of the vocational curriculum specialist in your particular situation.

   - the teacher
   - the administration
   - the student
   - the vocational curriculum specialist

3. What are the components of an accountability system?

4. Why are instructional objectives and criterion-referenced tests essential for an accountability system?

5. Read Chapter 1, "An Overview of Comprehensive Planning," in Lamar, C. F. (Ed.). Comprehensive planning for vocational education (Eighth Yearbook of the American Vocational Association). Washington, D.C.: American Vocational Association, 1978. It will give you a broad view of planning at the various levels of vocational education. The concepts you've been studying in this module are targeted at the local level, but these concepts are just as applicable at state and national levels, as you'll see from this reading. When you've completed the reading, write a paragraph summarizing the importance of comprehensive planning in vocational education.

Discussion Questions

1. Accountability often loses its appeal because of the testing requirement. Why do you think this is the case?

2. If a program is not effective in teaching a skill and does not result in students achieving the objectives, but it does increase student interest greatly, can it be justified?

3. Why has job placement traditionally been considered a criterion for evaluating vocational programs when it is not so considered by educators in general?

4. Assume that you have determined the cost of your program, as has John Doe with a similar program in a neighboring high school. Assume also that the costs for both programs are equal. If a follow-up study of the graduates of both programs shows that you placed twice as many graduates in jobs, which program is most cost effective?

5. What criteria other than those mentioned in the module might be used to evaluate a program?

6. In evaluating a vocational program, why is it important to consider whether students were overtrained?

Group Activity

1. Accountability could lead to preoccupation with educational goals that are observable and measurable. The ability to choose wisely, make critical judgments, and think independently cannot always be measured but is no less important than the ability to perform technical skills. To assume responsibility for immeasurable learning entails a certain amount of risk, but it also implies an open view of education, whereas accountability, though safer, lends itself to conformity and a mechanistic approach.

   Two groups should conduct a debate on the points brought up by this statement. Each group should take a few minutes to solidify its points of view and appoint a spokesperson. This spokesperson will be responsible for making the group's initial presentation. A debate by the two teams should follow.

Summary

In this module, you learned about the vital role of planning in vocational education; planning is the first and primary function of management. The Education Amendments of 1976 emphasized comprehensive planning to meet demands for the expansion and improvement of programs and services in a time of decreasing resources.

You learned that a curriculum specialist will need to demonstrate efficient use of resources; verify goals and objectives; identify target students; and consider school, course, student, and community requirements when planning for curriculum change. Additionally, the curriculum specialist may be called upon to help select instructors; provide facilities, equipment, and supplies; schedule; and prepare a budget.

You were exposed to a variety of planning techniques. All of these techniques are based on systems analysis: the separation of a system into its component subsystems in order to examine their relationships to one another and to the system as a whole. Finally, you learned about the concept of educational accountability: the demand of politicians, taxpayers, parents, and trustees that educational resources be effectively and efficiently used.

APPENDICES

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Study Activity Responses

GOAL 1

1. a. The criteria you establish as required for your course instructor depend entirely on the subject to be taught and the level--high school, junior college, etc.--of the course.

   b. To advertise for, recruit, and select an instructor, you should have mentioned the following steps:

   - Develop an information sheet about the job and instructor requirements.
   - Identify the location of the type of person you are recruiting.
   - Send materials to prospective instructors.
   - Compile a list of interested instructors.
   - Interview those who seem most qualified.
   - Have other staff members interview the best candidates.
   - Together with other staff members, select the candidate.

2. a. After course objectives are written, needed facilities should be specified.

   b. "Work station" is defined as the bench, machine, desk, study carrel, or place where one student may work.

   c. The factors that determine the number of tools needed for a course are the number of work stations; the degree to which certain tools, instruments, and other items are used during an operation; and the amount of expected student cooperation in the use of any one tool.

   d. Instructional supplies are expendable items. Instructional equipment includes tools and machines that can be used again and again; they are not expendable.

   e. Advantages of mobile laboratories include the following:

   - They are initially less expensive than adding a laboratory to a school.
   - The cost per student is lower when the program can be shared with one or more districts.

- Expensive equipment is used to a greater degree since the mobile unit moves on to another school when instruction is completed.

Disadvantages of mobile units include the following:

- They depreciate quite rapidly.
- The tractor or power unit involves high maintenance costs.
- Delicate instructional mechanisms and equipment may be damaged when transported over rough terrain.
- The safety zones and work spaces around machines are usually limited because of the narrow widths of the mobile units.

3. a. State guidelines vary from state to state, so the specific response to this activity depends on the state in which your school district is located. If you have questions, discuss them with the instructor.

   b. The steps that should be completed in order to purchase equipment include:

   - assembling a course outline,
   - preparing a list of necessary equipment and materials (including instructional specifications),
   - calculating total costs,
   - ranking requests according to priority,
   - identifying institutional policies for requesting bids, and
   - preparing purchase specifications.

4. An up-to-date inventory:

   - provides an accurate record of inventory;
   - identifies items that are missing or broken; and
   - can provide a basis for building an amortized schedule for equipment replacement.

5. a. Your response to this activity depends on the topic you selected. However, you might have mentioned the following points:

Team teaching requires specialists who teach in their field of greatest experience and expertise. If no specialists are available, team teaching is not a particularly useful management system.

Individualized instruction is not a reasonable system if the learning tasks might endanger students or equipment. Individualized instruction also requires prepared materials for the students.

Modular scheduling requires a number of individuals who perform different functions. It requires close supervision by the master teacher to ensure that all functions are being carried out. It also requires flexibility in planning for the use of facilities and instructors. Unless most of the vocational education courses are designed in the modular system, students, instructors, and equipment will probably not be conveniently scheduled using this system.

b. Your response to this activity depends on the topic you selected. You should have discussed one type of management system such as individualized instruction, modular planning, or team teaching. And you should have described how the scheduling of classes and teachers depends on the type of management system to be used in the classroom.

6.a-d. Your response to this activity depends on the course or program you selected. If you have any questions regarding the budget forms you developed, discuss them with your instructor.

7. a. money, personnel, information, and facilities

b. be aware of and take advantage of the many resources that are available at the national, regional, state, and local levels; submit a grant or proposal for resources available on a competitive basis; create new resources.

Discussion Question Responses

1. No. An inventive instructor or curriculum specialist can usually simulate different conditions or facilities to provide additional learning experiences. With only a few supplies, an instructor or specialist can demonstrate projects and activities, rather than having students complete them individually.

2. Sequence instructions and activities so that students learn to use present equipment in depth before moving on to new equipment. If supplies are short, consider having students pay for supplies. You may also try to locate businesses or community members who can donate supplies and equipment.

GOAL 2

1. Management by Objectives

   - Management by objectives (MBO) is a planning technique that encourages the active commitment and participation of personnel at all levels of an organization. Objectives are agreed on by all members of the organization, and each one is responsible for achieving his or her part in the project.

   - This management system is particularly useful when motivation is a problem.

   - The response to this question will vary with the individual.

   PERT

   - PERT is a diagrammatic scheduling technique that demonstrates the interdependencies of events and activities. It is particularly useful for scheduling complex programs.

   - PERT is used to schedule events during the initial stages of program development. It is also used to follow the progress of a program since delays in one activity can signal related delays in other parts of the schedule.

   - The response to this question will vary with the individual.

PPBS

- PPBS is a system that organizes all school activities by subject area programs. The purpose of PPBS is to relate costs to specific courses or programs to show what each program or course costs.

- PPBS should be used when a detailed accounting of expenses is required.

- The response to this question will vary with the individual.

The Delphi Technique

- The Delphi technique is a series of related procedures for eliciting and refining the opinions of a group of people. It was developed as an intuitive methodology for organizing and shaping forecasts of long-range trends and their probable effects.

- This technique is useful for forecasting and for gathering a consensus of experts.

- The response to this question will vary with the individual.

Advocate Team Process

- The advocate team process involves the selection of several teams. These teams are assigned a topic on which they advocate a consensual position. The end result is a number of strategies created for reaching a predetermined set of objectives.

- This technique should be used to generate alternative programs for achieving a given set of objectives.

- The response to this question will vary with the individual.

Zero-Based Budgeting

- Zero-Based Budgeting (ZBB) is a planning technique that includes budgeting. It is comprehensive and complex, although it appears simple. ZBB has three basic steps:

  (1) all organizational activities are described in discrete "decision units" or "decision packages,"

(2) these units or packages are evaluated and ranked by priority, and

(3) resources are allocated accordingly.

- This technique should be used for planning and budgeting all organizational activities that are reviewed annually under this system.

- The response to this question will vary with the individual.

Discussion Question Responses

1. This discussion will vary with individual student experiences.

2. Yes. The community can provide information regarding interests and needs. Parents are very influential in their children's choice of educational courses, so learning parental preferences helps the schools provide relevant objectives and courses. Also, local businesses' descriptions of their labor needs can help the school select relevant objectives.

3. PPBS requires a different budgeting system. School budgets have traditionally been line item budgets (e.g., instruction, administration, equipment). Under PPBS, budgeting must be by program; for instance, business education or secretarial practices. Many state accounting systems are not organized to accommodate PPBS.

4. Once PPBS is established, better information and cost data are available.

GOAL 3

1. Accountability is a systematic procedure for determining student learning needs, the effectiveness of the educational process in meeting these needs, and the efficiency of the educational process in meeting these needs.

2. - A teacher is accountable to the administrators, who expect certain activities and efforts in the classroom, and to the students and the parents, who also expect qualified teaching behavior and efforts in the classroom.

- The administration is accountable to the community and to the teachers to provide an environment in which instruction can be conducted. The administration is also responsible for maintaining the necessary records and meeting all state requirements for funding, safety, and upkeep.

- The student is accountable for the degree to which he or she takes advantage of the educational setting and applies him- or herself to the learning process.

- Your response to this question depends on the type of accountability system implemented by the curriculum specialist in your setting.

3. The essential components of an accountability system are:

   - objectives,

   - criterion-referenced tests,

   - a monitoring system to gather data on the success and failure of students, and

   - accurate cost data.

4. Instructional objectives and criterion-referenced tests are essential for an accountability system because without them no one knows the aim of education and, perhaps even worse, no one knows when or if the educational process has been successful.

5. Comprehensive planning in vocational education is necessary if capital resources are to be utilized efficiently and the nation's human resources effectively developed. With increasing competition for limited available resources to meet critical public needs, it is important that vocational education coordinate and cooperate with all public and private education and job training programs and related agencies and groups in planning job training programs for the mutual benefit of all.

Discussion Question Responses

1. If testing methods are not accurate, it is difficult to determine who is responsible for the success or failure of students. Also, most tests do not accurately assess student interests, emotional growth, and maturity--important parts of the educational process.

2. Probably, if the expense and time spent are not too great. However, the objectives should be examined carefully to see if they are appropriate for the class, and the teaching methods should definitely be revised so that they are more effective.

3. Since vocational education programs are designed to fill an employment need, they have traditionally considered placement a part of their program. General education does not teach students skills that are applicable to a specific job, so placement is not a part of their program.

4. The program that places more graduates is more cost-effective, even though the initial costs were equal.

5. Other criteria might include time spent, training, and intrinsic value of content.

6. Instruction that trains students to perform skills they will not have an opportunity to use on the job wastes time and money.

Self-Check

GOAL 1

1. What steps are typically involved in recruiting and selecting an instructor?

2. What steps are typically involved in purchasing equipment?

3. What are several alternative methods of scheduling classes and teachers in vocational education?

4. What steps are typically involved in preparing an annual budget for a specific course or program?

5. What types of resources are needed to support the planning function?

GOAL 2

1. The phrase mutual setting of goals by superordinates and subordinates best describes the activities associated with which of the planning and management techniques listed below?

   ___ a. PERT

   ___ b. ZBB

   ___ c. Delphi technique

   ___ d. MBO

   ___ e. PPBS

2. The phrase systematically displaying inputs, programs, and outputs for rational planning and budgeting best describes the activities associated with which of the planning and management techniques listed below?

   ___ a. ZBB

   ___ b. PPBS

   ___ c. MBO

   ___ d. PERT

   ___ e. advocate team process

3. The phrase allocating resources according to decision packages ranked in order of priority best describes the activities associated with which of the planning and management techniques listed below?

___ a. ZBB

___ b. PERT

___ c. MBO

___ d. PPBS

___ e. Delphi technique

GOAL 3

1. What is the meaning of "accountability" in education?

2. What is the role of the vocational curriculum specialist in an accountability system?

3. What are the essential components of an accountability system?

Self-Check Responses

GOAL 1

1. a. Develop an information sheet about the job and instructor requirements.

   b. Identify the location of the type of person you are recruiting.

   c. Send materials to prospective instructors.

   d. Compile a list of interested instructors.

   e. Interview those who seem most qualified.

   f. Have other staff members interview the best candidates.

   g. Together with other staff members, select the candidate.

2. a. Assemble course outline.

   b. Review course and prepare list of necessary equipment and materials (including instructional specifications).

   c. Calculate total costs.

   d. Rank requests according to priority.

   e. Identify institutional policies for requesting bids.

   f. Prepare purchase specifications.

3. a. team teaching

   b. individualized instruction

   c. differentiated staffing

   d. modular scheduling

4. a. Develop a form (or use the one provided by the institution) for calculating and recording budget items.

   b. Obtain worksheets to record details and calculate costs.

   c. Calculate revenue.

d. Calculate expenditures.

e. Determine the total for both revenue and expenditures, and calculate the estimated net gain or loss for the program.

5. a. money

b. personnel

c. information

d. facilities

GOAL 2

1. d

2. b

3. a

GOAL 3

1. Accountability is a systematic procedure for determining student learning needs, the effectiveness of the educational process in meeting these needs, and the efficiency of the educational process in meeting these needs.

2. The vocational curriculum specialist is the link between the educational institution and business and industry. He or she must ensure that learning objectives describe skills as verified by business and industry representatives and that graduates of vocational programs are prepared for the job performance requirements of business and industry.

3. a. objectives

b. criterion-referenced tests

c. monitoring data

d. cost data

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VECS Module Titles

Module 1: Vocational Educators and Curriculum Management

Module 2: The Scope of Vocational Education

Module 3: Organization of Vocational Education

Module 4: Legislative Mandates for Vocational Education

Module 5: Priorities in Vocational Education

Module 6: Vocational Education for Students with Special Needs

Module 7: Vocational Needs Assessment and Curriculum Development

Module 8: Conducting Task Analyses and Developing Instructional Objectives

Module 9: Selecting Instructional Strategies and Assessing Student Achievement

Module 10: Relating Learning Differences and Instructional Methods

Module 11: Selecting and Preparing Instructional Materials

Module 12: Evaluating Vocational Education Curricula

Module 13: Conducting Follow-Up Studies and Communicating Evaluation Results

Module 14: Managing Vocational Education Programs

Module 15: Preparing for Curriculum Change

Module 16: Staff Development